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(54) Title: SYSTEM FOR EXPRESSION OF GENES IN PLANTS

(57) Abstract: The present invention provides traps-complementation systems for expressing gene products in plants. In general, the invention provides systems including a carrier vector and a producer vector, both based on plant viruses. The producer vector is defective for at least one function needed for successful systemic infection of a plant, e.g., replication, cell-to-cell movement, or long distance movement. The carrier vector supplies the missing function in traps. Certain producer vectors lack a functional coat protein coding sequence, in which case the corresponding producer vector supplies coat protein in traps. The invention also provides novel plant viral vectors and methods of use, e.g., to produce polypeptides or active RNAs in plants.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03169

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 5/04, 5/10, 5/00, 15/86, 15/82
 US CL : 435/419, 440, 456, 457, 468

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 435/419, 440, 456, 457, 468

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US 5,939,541 (VANCE et al.) 17 August 1999 (17.08.1999), see examples 17-18 and column 2.	1, 2, 5-17, 19, 25, 26, 28, 29, 39, 40, 46-52, 66-69, 70, 71, 78, 79 ----- 3, 4, 18, 20-24, 27, 30-38, 41-45, 53-60, 63-65, 68, 72, 73, 75-77, 80-81
X,P --- A	US 2003/0135822 A1 (METZLAFF et al) 17 July 2003 (17.07.2003), para [0025].	1 ----- 2-60, 63-66, 68-81

Further documents are listed in the continuation of Box C.

See patent family annex.

Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

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Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/03169

Continuation of B. FIELDS SEARCHED Item 3:
EAST(pppub, uspat, epo, jpo, derwent), STN
virus, viral, vectors, coinfection, without or lack\$ or defective, coat protein

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03169

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 61,62 and 67
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
recited sequence positions with no related SEQ ID NOS and thus were unsearchable.

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

 No protest accompanied the payment of additional search fees.